

**In the claims:**

**Amend claims 1-16 where indicated.**

1        1. (Currently Amended) A magnetic head assembly having an air bearing surface  
2        (ABS) and comprising:

3              a write head including:

4                  ferromagnetic first and second pole pieces layers that have a yoke portion located  
5                  between a pole tip portion and a back gap portion;

6                  a nonmagnetic write gap layer located between the pole tip portions of the first and  
7                  second pole pieces layers;

8                  an insulation stack with at least one coil layer embedded therein located between  
9                  the yoke portions of the first and second pole pieces layers;

10                 the first and second pole pieces layers being connected at their back gap portions;

11                 the pole tip portion of the first pole piece having non-overlapping first and second  
12                 components wherein the first component forms a portion of the ABS and the second  
13                 component is recessed from the ABS and is magnetically connected to the first component;  
14                 and

15                 the second component having a width that is less than a width of the first  
16                 component wherein said widths are parallel to the ABS and parallel to a major thin film  
17                 planes plane of the layers of the sensor; write gap layer.

1        2. (Currently Amended) A magnetic head assembly as claimed in claim 1 further  
2        comprising:

3              the first pole piece layer having a third component that is recessed from the ABS and that  
4              has a width that is parallel to the ABS and the major thin film planes plane of the layers of the  
5              sensor; write gap layer;

6              the second component interconnecting the first and third components; and

7              the width of the third component being greater than the width of the second component.

1           3. (Currently Amended). A magnetic head assembly as claimed in claim 1 further  
2 comprising: A magnetic head assembly having an air bearing surface (ABS) and comprising:  
3           a write head including:  
4           ferromagnetic first and second pole piece layers that have a yoke portion located  
5           between a pole tip portion and a back gap portion;  
6           a nonmagnetic write gap layer located between the pole tip portions of the first and  
7           second pole piece layers;  
8           an insulation stack with at least one coil layer embedded therein located between  
9           the yoke portions of the first and second pole piece layers;  
10          the first and second pole piece layers being connected at their back gap portions;  
11          the pole tip portion of the first pole piece layer having first and second components  
12          wherein the first component forms a portion of the ABS and the second component is  
13          recessed from the ABS and is magnetically connected to the first component;  
14          the second component having a width that is less than a width of the first  
15          component wherein said widths are parallel to the ABS and parallel to a major plane of the  
16          write gap layer;  
17          the first pole piece layer having a third component that is recessed from the ABS  
18          and having a width that is parallel to the ABS and the major thin film plane of the write  
19          gap layer;  
20          the second component interconnecting the first and third components;  
21          the width of the third component being greater than the width of the second  
22          component;  
23          the first pole piece layer having a base layer and a pedestal wherein the pedestal  
24          forms a portion of the ABS; and  
25          the pedestal interconnecting the base layer and the first component.

1           4. (Currently Amended) A magnetic head assembly as claimed in claim 1 further  
2 comprising:

3           a read head including:

4            a read sensor;

5            nonmagnetic electrically nonconductive first and second read gap layers;

6            the read sensor being located between the first and second read gap layers;

7            a ferromagnetic first shield layer; and

8            the first and second read gap layers being located between the first shield layer and  
9            the first pole piece layer.

1           5. (Currently Amended) A magnetic head assembly as claimed in claim 4 further  
2 comprising:

3           the first pole piece layer having a third component that is recessed from the ABS and that  
4           has a width that is parallel to the ABS and the major thin film planes planes of the layers of the  
5           sensor, write gap layer;

6           the second component interconnecting the first and third components; and

7           the width of the third component being greater than the width of the second component.

1           6. (Currently Amended) A magnetic head assembly as claimed in claim 5 further  
2 comprising: A magnetic head assembly having an air bearing surface (ABS) and comprising:

3           a write head including:

4           ferromagnetic first and second pole piece layers that have a yoke portion located  
5           between a pole tip portion and a back gap portion:

6           a nonmagnetic write gap layer located between the pole tip portions of the first and  
7           second pole piece layers:

8           an insulation stack with at least one coil layer embedded therein located between  
9           the yoke portions of the first and second pole piece layers:

10           the first and second pole piece layers being connected at their back gap portions:

11           the pole tip portion of the first pole piece layer having first and second components  
12           wherein the first component forms a portion of the ABS and the second component is  
13           recessed from the ABS and is magnetically connected to the first component:

14                   the second component having a width that is less than a width of the first  
15                   component wherein said widths are parallel to the ABS and parallel to a major plane of the  
16                   write gap layer;

17                   the first pole piece layer having a third component that is recessed from the ABS  
18                   and having a width that is parallel to the ABS and the major thin film plane of the write  
19                   gap layer;

20                   the second component interconnecting the first and third components;

21                   the width of the third component being greater than the width of the second  
22                   component;

23                   the first pole piece layer having a base layer and a pedestal wherein the pedestal  
24                   forms a portion of the ABS; and

25                   the pedestal interconnecting the base layer and the first component;  
26                   a read head including:

27                   a read sensor;

28                   nonmagnetic electrically nonconductive first and second read gap layers;

29                   the read sensor being located between the first and second read gap layers;

30                   a ferromagnetic first shield layer; and

31                   the first and second read gap layers being located between the first shield layer and  
32                   the first pole piece layer.

1                   7. (Currently Amended) A magnetic disk drive including at least one magnetic  
2                   head assembly that has an air bearing surface (ABS) and that includes a write head and a read  
3                   head, comprising:

4                   the write head including:

5                   ferromagnetic first and second pole pieces layers that have a yoke portion located  
6                   between a pole tip portion and a back gap portion;

7                   a nonmagnetic write gap layer located between the pole tip portions of the first and  
8                   second pole pieces layers;

9                   an insulation stack with at least one coil layer embedded therein located between  
10                  the yoke portions of the first and second pole pieces layers;

11                  the first and second pole pieces layers being connected at their back gap portions;

12                   the pole tip portion of the first pole piece having non-overlapping first and second  
13 components wherein the first component forms a portion of the ABS and the second  
14 component is recessed from the ABS and is magnetically connected to the first component;  
15 and

16                   the second component having a width that is less than a width of the first  
17 component wherein said widths are parallel to the ABS and parallel to a major thin film  
18 planes of the layers of the sensor; plane of the write gap layer;

19                   a the read head including:

20                   a read sensor;

21                   nonmagnetic electrically nonconductive first and second read gap layers;

22                   the read sensor being located between the first and second read gap layers;

23                   a ferromagnetic first shield layer; and

24                   the first and second read gap layers being located between the first shield layer and  
25 the first pole piece; layer;

26                   a housing;

27                   a magnetic disk rotatably supported in the housing;

28                   a support mounted in the housing for supporting the magnetic head assembly with said  
29 ABS facing the magnetic disk so that the magnetic head assembly is in a transducing relationship  
30 with the magnetic disk;

31                   a spindle motor for rotating the magnetic disk;

32                   an actuator positioning means connected to the support for moving the magnetic head  
33 assembly to multiple positions with respect to said magnetic disk; and

34                   a processor connected to the magnetic head assembly, to the spindle motor and to the  
35 actuator positioning means for exchanging signals with the magnetic head assembly, for  
36 controlling movement of the magnetic disk and for controlling the position of the magnetic head  
37 assembly.

1                   8. (Currently Amended) A magnetic disk drive as claimed in claim 7 further  
2 comprising:

3                   the first pole piece layer having a third component that is recessed from the ABS and has  
4 a width that is parallel to the ABS and the major thin film planes plane of the layers of the sensor;  
5 write gap layer;

6                   the second component interconnecting the first and third components; and

7                   the width of the third component being greater than the width of the second component.

1                   9. (Currently Amended) ~~A magnetic disk drive as claimed in claim 7 further~~  
2 ~~comprising:~~ A magnetic disk drive including at least one magnetic head assembly that has an air  
3 bearing surface (ABS) and that includes a write head and a read head, comprising:

4                   the write head including:

5                   ferromagnetic first and second pole piece layers that have a yoke portion located  
6 between a pole tip portion and a back gap portion;

7                   a nonmagnetic write gap layer located between the pole tip portions of the first and  
8 second pole piece layers;

9                   an insulation stack with at least one coil layer embedded therein/located between  
10 the yoke portions of the first and second pole piece layers;

11                   the first and second pole piece layers being connected at their back gap portions;

12                   the pole tip portion of the first pole piece layer having first and second components  
13 wherein the first component forms a portion of the ABS and the second component is  
14 recessed from the ABS and is magnetically connected to the first component;

15                   the second component having a width that is less than a width of the first  
16 component wherein said widths are parallel to the ABS and parallel to a major thin film  
17 plane of the write gap layer;

18                   the read head including:

19                   a read sensor;

20                   nonmagnetic electrically nonconductive first and second read gap layers;

21                   the read sensor being located between the first and second read gap layers;

22                   a ferromagnetic first shield layer;

23                   the first and second read gap layers being located between the first shield layer and  
24 the first pole piece layer;

25                   the first pole piece layer having a base layer and a pedestal wherein the pedestal  
26 forms a portion of the ABS; and

27                   the pedestal interconnecting the base layer and the first component;

28                   a housing;

29                   a magnetic disk rotatably supported in the housing;

30                   a support mounted in the housing for supporting the magnetic head assembly with said  
31 ABS facing the magnetic disk so that the magnetic head assembly is in a transducing relationship  
32 with the magnetic disk;

33           a spindle motor for rotating the magnetic disk;  
34           an actuator positioning means connected to the support for moving the magnetic head  
35           assembly to multiple positions with respect to said magnetic disk; and  
36           a processor connected to the magnetic head assembly, to the spindle motor and to the  
37           actuator positioning means for exchanging signals with the magnetic head assembly, for  
38           controlling movement of the magnetic disk and for controlling the position of the magnetic head  
39           assembly.

1           10. (Original) A magnetic disk drive as claimed in claim 9 further comprising:  
2           the first pole piece layer having a third component that is recessed from the ABS and has  
3           a width that is parallel to the ABS and the major thin film planes of the layers of the sensor;  
4           the second component interconnecting the first and third components; and  
5           the width of the third component being greater than the width of the second component.

1           11. (Currently Amended) A method of making a magnetic head assembly having an  
2           air bearing surface (ABS) and comprising the steps of:  
3           making a write head including the steps of:  
4           forming ferromagnetic first and second pole pieces layers that have a yoke portion  
5           located between a pole tip portion and a back gap portion;  
6           forming a nonmagnetic write gap layer between the pole tip portions of the first and  
7           second pole pieces layers;  
8           forming an insulation stack with at least one coil layer embedded therein between  
9           the yoke portions of the first and second pole pieces layers;  
10          connecting the first and second pole pieces layers at their back gap portions;  
11          forming the pole tip portion of the first pole piece with non-overlapping first and  
12          second components wherein the first component forms a portion of the ABS and the  
13          second component is recessed from the ABS and is magnetically connected to the first  
14          component; and  
15          forming the second component with a width that is less than a width of the first  
16          component wherein said widths are parallel to the ABS and parallel to a major thin film  
17          planes of the layers of the sensor. plane of the write gap layer.

1           12. (Currently Amended) A method of making a magnetic head assembly as  
2 claimed in claim 11 further comprising the steps of:

3           forming the first pole piece layer with a third component that is recessed from the ABS and  
4 with a width that is parallel to the ABS and the major ~~thin film planes of the layers of the sensor~~  
5 ~~plane of the write gap layer;~~

6           forming the second component interconnecting the first and third components; and  
7 forming the width of the third component greater than the width of the second component.

1           13. (Currently Amended) ~~A method of making a magnetic head assembly as~~  
2 ~~claimed in claim 11 further comprising the steps of:~~ A method of making a magnetic head  
3 assembly having an air bearing surface (ABS) and comprising the steps of:

4           making a write head including the steps of:

5           forming ferromagnetic first and second pole piece layers that have a yoke portion  
6 located between a pole tip portion and a back gap portion;

7           forming a nonmagnetic write gap layer between the pole tip portions of the first and  
8 second pole piece layers;

9           forming an insulation stack with at least one coil layer embedded therein between  
10 the yoke portions of the first and second pole piece layers;

11           connecting the first and second pole piece layers at their back gap portions;

12           forming the pole tip portion of the first pole piece layer with first and second  
13 components wherein the first component forms a portion of the ABS and the second  
14 component is recessed from the ABS and is magnetically connected to the first component;  
15 and

16           forming the second component with a width that is less than a width of the first  
17 component wherein said widths are parallel to the ABS and parallel to a major thin film  
18 plane of the write gap layer;

19           forming the first pole piece layer with a third component that is recessed from the  
20 ABS and with a width that is parallel to the ABS and the major thin film plane of the write  
21 gap layer;

22           forming the second component interconnecting the first and third components;

23           forming the width of the third component greater than the width of the second  
24 component;

25 forming the first pole piece layer with a base layer and a pedestal wherein the  
26 pedestal forms a portion of the ABS; and  
27 forming the pedestal interconnecting the base layer and the first component.

1 14. (Currently Amended) A method of making a magnetic head assembly as claimed  
2 in claim 11 further comprising the steps of:

3 making a read head including the steps of:

4 forming a read sensor;

5 forming nonmagnetic electrically nonconductive first and second read gap layers  
6 with the read sensor located between the first and second read gap layers; and

7 forming a ferromagnetic first shield layer with the first and second read gap layers  
8 located between the first shield layer and the first pole piece layer.

1 15. (Currently Amended) A method of making a magnetic head assembly as  
2 claimed in claim 14 further comprising the steps of:

3 forming the first pole piece layer with a third component that is recessed from the ABS and  
4 with a width that is parallel to the ABS and the major thin film planes of the layers of the sensor,  
5 plane of the write gap layer;

6 forming the second component interconnecting the first and third components; and

7 forming the width of the third component greater than the width of the second component.

1 16. (Currently Amended) A method of making a magnetic head assembly as claimed  
2 in claim 15 further comprising the steps of: A method of making a magnetic head assembly  
3 having an air bearing surface (ABS) and comprising the steps of:

4 making a write head including the steps of:

5 forming ferromagnetic first and second pole piece layers that have a yoke portion  
6 located between a pole tip portion and a back gap portion;

7 forming a nonmagnetic write gap layer between the pole tip portions of the first and  
8 second pole piece layers;

9 forming an insulation stack with at least one coil layer embedded therein between  
10 the yoke portions of the first and second pole piece layers;

11 connecting the first and second pole piece layers at their back gap portions;

12           forming the pole tip portion of the first pole piece layer with first and second  
13           components wherein the first component forms a portion of the ABS and the second  
14           component is recessed from the ABS and is magnetically connected to the first component;  
15           and

16           forming the second component with a width that is less than a width of the first  
17           component wherein said widths are parallel to the ABS and parallel to a major thin film  
18           plane of the write gap layer;

19           forming the first pole piece layer with a third component that is recessed from the  
20           ABS and with a width that is parallel to the ABS and the major thin film plane of the write  
21           gap layer;

22           forming the second component interconnecting the first and third components;

23           forming the width of the third component greater than the width of the second  
24           component;

25           forming the first pole piece layer with a base layer and a pedestal wherein the  
26           pedestal forms a portion of the ABS; and

27           forming the pedestal interconnecting the base layer and the first component;  
28           making a read head including the steps of:

29           forming a read sensor;

30           forming nonmagnetic electrically nonconductive first and second read gap layers  
31           with the read sensor located between the first and second read gap layers; and

32           forming a ferromagnetic first shield layer with the first and second read gap layers  
33           located between the first shield layer and the first pole piece layer.

**Add new claims 17-20.**

1        17. (New) A magnetic head assembly having a head surface and comprising:  
2            a write head including:

3                  ferromagnetic first and second pole pieces that have a yoke portion located between  
4                  a pole tip portion and a back gap portion;

5                  a nonmagnetic write gap layer located between said pole tip portions;

6                  an insulation stack with at least one coil layer embedded therein located between  
7                  said yoke portions;

8                  the first and second pole pieces being connected at their back gap portions; and

9                  the pole tip portion having a reduced cross-section portion wherein the reduced  
10                 cross-section portion is located entirely within a region which is recessed from said head  
11                 surface.

1        18. (New) A magnetic head assembly as claimed in claim 17 further comprising:  
2            a read head including:

3                  a read sensor;

4                  nonmagnetic electrically nonconductive first and second read gap layers;

5                  the read sensor being located between the first and second read gap layers;

6                  a ferromagnetic first shield layer; and

7                  the first and second read gap layers being located between the first shield layer and  
8                 the first pole piece.

1        19. (New) A magnetic disk drive including at least one magnetic head assembly that  
2                 has a head surface and that includes a write head and a read head, comprising:

3            a write head including:

4                  ferromagnetic first and second pole pieces that have a yoke portion located between  
5                  a pole tip portion and a back gap portion;

6                  a nonmagnetic write gap layer located between said pole tip portions;

7                  an insulation stack with at least one coil layer embedded therein located between  
8                  said yoke portions;

9                  the first and second pole pieces being connected at their back gap portions; and

10                   the pole tip portion having a reduced cross-section portion wherein the reduced  
11                   cross-section portion is located entirely within a region which is recessed from said head  
12                   surface;

13                   the read head including:

14                   a read sensor;

15                   nonmagnetic electrically nonconductive first and second read gap layers;

16                   the read sensor being located between the first and second read gap layers;

17                   a ferromagnetic first shield layer; and

18                   the first and second read gap layers being located between the first shield layer and  
19                   the first pole piece layer;

20                   a housing;

21                   a magnetic medium supported in the housing;

22                   a support mounted in the housing for supporting the magnetic head assembly with said  
23                   head surface facing the magnetic medium so that the magnetic head assembly is in a transducing  
24                   relationship with the magnetic medium; and

25                   a processor connected to the magnetic head assembly for exchanging signals with the  
26                   magnetic head assembly.

1                   20. (New) A method of making a magnetic head assembly having an air bearing  
2                   surface (ABS) and comprising the steps of:

3                   making a write head including the steps of:

4                   forming ferromagnetic first and second pole pieces with a yoke portion located  
5                   between a pole tip portion and a back gap portion;

6                   forming a nonmagnetic write gap layer between said pole tip portions;

7                   forming an insulation stack with at least one coil layer embedded therein between  
8                   said yoke portions;

9                   connecting the first and second pole pieces at their back gap portions; and

10                   forming the pole tip portion with a reduced cross-section portion wherein the  
11                   reduced cross-section portion is located entirely within a region which is recessed from  
12                   said head surface.